

Appl.No. 10/617,991
Amendment dated July 20, 2004
Reply to Office Action of April 29, 2004

PATENT
Attorney Docket 127698-1000

Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims

Claims 1-14 (cancelled)

Claim 15 (new): A system for transporting compressed gas aboard a ship comprises:

- a. a plurality of tanks permanently attached to the ship, the tanks adapted for carrying the compressed gas, each tank comprising:
 - i. a heating system integral to the tank;
 - ii. a cooling system integral to the tank;
 - iii. a gas distribution perforated pipeline system integral to the tank;
 - iv. a zeolite material inside the tank, the zeolite material adapted for adsorption of the gas into pore spaces of the zeolite material, and
- b. a piping system permanently attached to the ship, and permanently attached to each tank, the piping system comprising:
 - i. a loading manifold for receiving gas onboard the ship;
 - ii. an injection pump connected to the loading manifold and to the perforated pipeline system in each tank; and
 - iii. connecting pipes for interconnecting the tanks, the tanks being integrally connected to interchange pressurized gas and liquid from the tanks to user-selected other tanks, whereby weight distribution in the ship may be adjusted.

Claim 16 (new): The system of claim 15, wherein the piping system further comprises:

- a) an unloading manifold for unloading the gas from the ship; and

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- b) a vacuum pump connected to the unloading manifold and to the perforated pipeline system in each tank.

Claim 17 (new): The system of claim 16, wherein each tank further comprises:

- a) a pressure gage attached to a wall of the tank so as to sense the pressure inside the tank, and indicate such pressure outside the tank; and
- b) a temperature gage attached to a wall of the tank so as to sense the temperature inside the tank, and indicate such temperature outside the tank.

Claim 18 (new): The system of claim 17, wherein the piping system further comprises, for each tank, a manometer in close proximity to the tank.

Claim 19 (new): The system of claim 18, wherein each tank further comprises:

- a) a level indicator positioned near the top of the tank, and attached to a wall of the tank, so as to sense the level of the zeolite material inside the tank, and to indicate such level outside the tank; and
- b) a hatch positioned in a top wall of the tank for accessing the zeolite material inside the tank.

Claim 20 (new): The system of claim 19 wherein the zeolite material further comprises zeolites.

Claim 21 (new): The system of claim 20 wherein the zeolite material further comprises clinoptilolite-rich zeolites.

Claim 22 (new): The system of claim 21 wherein the compressed gas is natural gas.

Claim 23 (new): A method for transportation of natural gas aboard a ship, the method comprising the steps of:

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- a. providing a plurality of tanks on board the ship;
- b. putting a zeolite material in the tanks;
- c. connecting gas delivery tubes to the tanks;
- d. introducing the gas into the tanks under pressure until a desired pressure is reached;
- e. disconnecting the gas delivery tubes to the tanks, and allowing the ship to embark to its desired destination; and
- f. after the ship reaches its desired destination, connecting gas delivery tubes to the tanks, and discharging the gas from the tanks.

Claim 24 (new): The method of claim 23, before the second step of putting a zeolite material in the tanks, further comprising the following steps:

- a. graining the zeolite material;
- b. modifying the zeolite material with an appropriate mole-ratio of hydrochloric acid;
- c. dehumidifying the zeolite material; and
- d. sieving the zeolite material.

Claim 25 (new): The method of claim 24, wherein the desired pressure is no greater than 500 psi.

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Claim 26 (new): The method of claim 23, wherein the step of introducing the gas into the tanks further comprises the following steps:

- a. admitting a gaseous larger molecular weight organic compound to the storage vessel causing a substantial portion of the admitted gas up to a predetermined maximum level to be adsorbed in the adsorbent bed,
- b. subsequently admitting the gaseous hydrocarbon fuel alone to the storage vessel at a superatmospheric pressure to cause a substantial portion of the admitted hydrocarbon fuel to also become adsorbed in the adsorbent bed while further increasing pressure within the storage vessel, and
- c. releasing the adsorbed gases from the storage vessel at substantially ambient temperature by reducing pressure within the storage vessel to approximately atmospheric pressure whereupon the amount of gaseous hydrocarbon fuel being released remains greater at all reduced pressures than does occur if said gaseous hydrocarbon fuel is stored alone and released under the same conditions.